

Application Number 10/783,746
 Preliminary Amendment filed September 10, 2004

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): An electrical circuit for driving a load, comprising

- a transistor (12; 14; 22) having a load current flowing therethrough,
- a measurement device (30; 32) for determining the voltage drop across the this transistor (12; 14; 22),
- a device (42) for impressing a measuring current into the transistor (12; 14; 22), and
- a device for determining the resistance value of the transistor (12; 14; 22) in its ON state, this resistance value being between a known maximum value (R_{XMAX}) and a known minimum value (R_{XMIN}), wherein and the device for determining the resistance value is provided with
 - a measuring bridge (36) having the transistor (12; 14; 22) and a known reference resistor (R_R) arranged in its first bridge arm (38) and having three respectively known resistors (R_1, R_2, R_3) arranged in its second bridge arm (40),
 - the first bridge arm (38) comprising a resistor connecting point (K_1) between the reference resistor (R_R) and the transistor (12; 14; 22), and the second bridge leg (40) comprising a first resistor connecting point (K_2) between the first resistor (R_1) connected to the transistor (12; 14; 22), and the second resistor (R_2), as well as a second resistor connecting point (K_3) between the second resistor (R_2) and the third resistor (R_3) connected to the reference resistor, and
 - the values of the reference resistor (R_R) of the first bridge arm (38) and of the three resistors (R_1, R_2, R_3) of the second bridge arm (40) being selected in such a manner that (i) the potential of the resistor connecting point (K_1) of the first bridge leg (38) is equal to the potential of the first resistor connecting point (K_2) of the second bridge leg (40) if the transistor (12; 14; 22) is at its minimum resistance value (R_{XMIN}), and (ii) the potential of the resistor connecting point (K_1) of the first

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bridge leg (38) is equal to the potential of the second resistor connecting point (K_2) of the second bridge leg (40) if the transistor (12; 14; 22) is at its maximum resistance value (R_{xMAX}).

Claim 2 (Currently Amended): The electrical circuit according to claim 1, characterized in that the transistor (12; 14; 22) is a polarity protection transistor or a transistor switching the load (16).

Claim 3 (Currently Amended): The electrical circuit according to claim 1 or 2, characterized by a device (32; 50; 52) for measuring the difference voltages between the resistor connecting points (K_1 , K_2 , K_3).

Claim 4 (Currently Amended): The electrical circuit according to any one of claims 1 to 3, characterized by a multiplexer (52) for selectively passing on one of the measurement voltages to a voltage measuring device (50).

Claim 5 (Currently Amended): The electrical circuit according to claim 1 or 2, characterized by a device for measuring individual voltages between respectively the resistor connecting points (K_1 , K_2 , K_3) and a common reference potential, and for subtraction of respectively two measured individual voltages.

Claim 6 (Currently Amended): The electrical circuit according to any one of claim 1 to 5, characterized by an A/D converter (32) for measurement of the voltages.

Claim 7 (Currently Amended): The electrical circuit according to claim 6, characterized by a switch (34) at the input of the A/D converter (32), for using the A/D converter (32) on the one hand for voltage measurements and on the other hand for measurements of the voltage drop across the transistor (12; 14; 22) of which the resistance value (R_x) has to be determined for thus obtaining the load current.

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Claim 8 (Currently Amended): The electrical circuit according to any one of claims 1 to 7, characterized by a control unit (18) provided to control the device (42) for impressing a measuring current into the transistor (12; 14; 22) and, if provided, of the switch (34), of the A/D converter (32), of the multiplexer (52), of a polarity protection transistor and of a load-switching transistor.

Claim 9 (Currently Amended): The electrical circuit according to any one of claim 1 to 8, characterized by a temperature sensor for detecting the ambient temperature of the transistor (12; 14; 22) of which the resistance value (R_{θ}) has to be determined.

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CONCLUSION

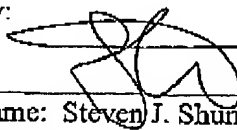
In this Preliminary Amendment, Applicants have amended the specification and claims for improved clarity. Applicant respectfully requests entry of this Preliminary Amendment prior to commencement of examination. Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

Date:

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